CHEMICALS, THE ENVIRONMENT, AND YOU: EXPLORATIONS IN SCIENCE AND HUMAN HEALTH		
Kansas Science Standards: Grades 5 – 7		
Lesson	**Standard**	**Indicator**
2, 4, 6	**1.1.1**	Identifies questions that can be answered through scientific investigations.
2, 4, 6	**1.1.2**	Designs and conducts scientific investigations safely using appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data. a. designs and conducts an investigation on a question. Components of the investigation may include background and hypothesis, identification of variables (independent variable, dependent variable, variables to be held constant), list of materials, procedures, collection and analysis of data, and conclusions. Given an investigative question, determines what to measure and how to measure. Displays data collected from performing in investigation using tables, graphs, diagrams and other graphic organizers.
All lessons	**1.1.3**	Identifies the relationship between evidence and logical conclusions.
1, 2, 3, 4, 6	**1.1.4**	Communicates scientific procedures, results and explanations.
2, 4, 6	**1.2.1**	Develops questions and adapts (frames) the inquiry process to guide the appropriate type of investigation.
2, 3, 4, 5, 6	**1.2.2**	Differentiates between qualitative and quantitative data in an investigation
2, 3, 4, 6	**1.3.1**	After completing an investigation, generates alternative methods of investigation and/or further questions for inquiry.
2, 3, 4, 5, 6	**1.3.2**	Evaluates the work of others to determine evidence which scientifically supports or contradicts the results, identifying faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.
2, 3, 4	**3.1.4**	Concludes that breakdowns in structure or function may be caused by disease, damage, heredity, or aging.
2, 5, 6	**3.2.3**	Infers that the characteristics of an organism result from heredity and interactions with the environment.
2, 4, 5	**3.3.1**	Understands that internal and/or environmental conditions affect an organism's behavior and/or response in order to maintain and regulate stable internal conditions to survive in a continually changing environment.
2, 5	**3.5.1**	Concludes that species of animals, plants, and microorganisms may look dissimilar on the outside but have similarities in internal structures, developmental characteristics, chemical processes, and genomes.
1, 5, 6	**5.2.2**	Evaluates benefits, risks, limitations and trade-offs of technological solutions.
1, 5	**5.2.3**	Identifies contributions to science and technology by many people and many cultures.
4, 5, 6	**6.1.1**	Identifies individual nutrition, exercise, and a rest needs based on science and uses a scientific approach to thinking critically about personal health, lifestyle choices, risks and benefits.
1, 2, 5, 6	**6.2.1**	Investigates the effects of human activities on the environment and analyzes decisions based on the knowledge of benefits and risks.
1, 5, 6	**6.3.1**	Recognizes patterns of natural processes and/or human activities that may cause and/or contribute to natural hazards.
4, 5, 6	**6.3.2**	Evaluates risks and defines appropriate actions associated with the natural hazard.
2, 3, 4, 5, 6	**7.1.1**	Practices intellectual honesty, demonstrates skepticism appropriately, displays open-mindedness to new ideas, and bases decisions on evidence.

1, 5	**7.2.1**	Recognizes that new knowledge leads to new questions and new discoveries, replicates historic experiments to understand principles of science, and relates contributions of men and women to the fields of science.
Kansas Mathematics Standards: Grades 6 – 8		
Grade 6		
Lesson	**Standard**	**Knowledge Base Indicator**
2, 4	**1.1.1**	Knows, explains, and uses equivalent representations for rational numbers expressed as fractions, terminating decimals, and percents; positive rational number bases with whole number exponents; time; and money.
2, 4	**1.1.4**	Knows and explains numerical relationships between percents, decimals, and fractions between 0 and 1 (2.4.K1a,c), e.g., recognizing that percent means out of a 100, so 60% means 60 out of 100, 60% as a decimal is .60, and 60% as a fraction is 60/100.
2, 4	**1.4.1**	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
4	**2.2.4**	Explains and uses equality and inequality symbols (=, ≠, <, ≤, >, ≥) and corresponding meanings (is equal to, is not equal to, is less than, is less than or equal to, is greater than, is greater than or equal to) to represent mathematical relationships with positive rational numbers.
4	**2.4.1**	Knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships.
4	**2.4.2**	Uses one or more mathematical models to show the relationship between two or more things.
2, 4	**3.2.1**	Determines and uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.
2, 4	**3.2.2**	Selects, explains the selection of, and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
4	**3.2.3**	Converts: a. within the customary system, e.g., converting feet to inches, inches to feet, gallons to pints, pints to gallons, ounces to pounds, or pounds to ounces; b. within the metric system using the prefixes: kilo, hecto, deka, deci, centi, and milli; e.g., converting millimeters to meters, meters to millimeters, liters to kiloliters, kiloliters to liters, milligrams to grams, or grams to milligrams.
2, 3, 4	**4.2.1**	Organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: a. graphs using concrete objects; b. frequency tables and line plots; c. bar, line, and circle graphs; d. Venn diagrams or other pictorial displays; e. charts and tables; f. single stem-and-leaf plots; g. scatter plots.

4	**4.2.3**	Uses sampling to collect data and describe the results.
Grade 7		
2, 4	**1.1.1**	Knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; integer bases with whole number exponents; positive rational numbers written in scientific notation with positive integer exponents; time; and money.
2, 4	**1.4.1**	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
3, 4	**2.1.1**	Identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written.
2, 3, 4	**2.2.1**	Knows and explains that a variable can represent a single quantity that changes, e.g., daily temperature.
2, 3, 4	**2.2.3**	Shows and explains how changes in one variable affect other variables.
4	**2.2.4**	Knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships.
2, 4	**3.2.2**	Selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
4	**3.2.3**	Converts within the customary system and within the metric system.
2, 3, 4	**4.2.1**	Organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: a. frequency tables; b. bar, line, and circle graphs; c. Venn diagrams or other pictorial displays; d. charts and tables; e. stem-and-leaf plots (single); f. scatter plots; g. box-and-whiskers plots.
Grade 8		
2, 4	**1.1.1**	Knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; rational number bases with integer exponents; rational numbers written in scientific notation with integer exponents; time; and money.
2, 4	**1.4.1**	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
2, 4	**1.4.2**	Performs and explains computational procedures with rational numbers.
3, 4	**2.1.1**	Identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written.
2, 3, 4	**2.2.1**	Identifies independent and dependent variables within a given situation.

2, 4	**2.2.4**	Knows and describes the mathematical relationship between ratios, proportions, and percents and how to solve for a missing monomial or binomial term in a proportion.
4	**2.4.1**	Knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships.
2, 4	**3.2.2**	Selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate real number representations for length, weight, volume, temperature, time, perimeter, area, surface area, and angle measurements.
4	**3.2.3**	Converts within the customary system and within the metric system.
2, 3, 4	**4.2.1**	Organizes, displays and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: a. frequency tables; b. bar, line, and circle graphs; c. Venn diagrams or other pictorial displays; d. charts and tables; e. stem-and-leaf plots (single and double); f. scatter plots; g. box-and-whiskers plots; h. histograms.
Kansas Reading Standards: Grades 6 – 8		
Lesson	**Standard**	**Knowledge Base Indicator**
All lessons	**1.3.1**	Determines the meaning of words or phrases using context clues (e.g., *definitions*, *restatements*, *examples, descriptions, comparison-contrast,* clue words, *cause-effect)* from sentences or paragraphs.
2, 4, 5, 6	**1.4.2**	Understands the purpose of text features (e.g., title, graphs/charts and maps, table of contents, pictures/illustrations, boldface type, italics, glossary, index, headings, subheadings, *topic* and summary sentences, captions, sidebars, underlining, numbered or bulleted lists) and uses such features to locate information in and to gain meaning from appropriate-level texts.
1, 2, 4, 5, 6	**1.4.4**	Generates and responds logically to literal, inferential, and *critical thinking* questions before, during, and after reading the text.
1, 2, 4, 5, 6	**1.4.5**	Uses information from the text to make inferences and draw conclusions.
1, 2, 4, 5, 6	**1.4.8**	Explains cause-effect relationships in appropriate-level *narrative*, *expository*, *technical*, and *persuasive texts*.
1, 2, 4, 5, 6	**1.4.9**	Uses *paraphrasing* and organizational skills to *summarize* information (e.g., stated and implied *main ideas*, main events, important details) from appropriate-level *narrative*, *expository*, *persuasive*, and *technical texts* in logical order.
1, 2, 4, 5, 6	**1.4.10**	Identifies the *topic*, *main idea(s),* supporting details, and *theme(s)* in text across the content areas and from a variety of sources in appropriate-level texts.
2, 4	**1.4.13**	Follows directions explained in *technical text*.

Kansas Writing Standards: Grades 6 – 8		
Lesson	**Standard**	**Knowledge Base Indicator**
1, 2, 4, 5, 6	**1.2.2**	Clarifies the main idea by selecting logical details that are accurate and helpful (6th & 7th). Clearly identifies the main idea with selection of relevant, logical details that meet the reader's informational needs (8th).
1, 2, 4, 5, 6	**1.2.3**	Practices/uses writing using (1) personal experience (2) observations (3) prior knowledge (4) research to provide information using an appropriate point of view for the piece (e.g. 3rd person pronouns in research).
1, 2, 4, 5, 6	**1.2.4**	Expresses information in own words using evidence and examples (6th & 7th). Expresses information in own words and uses explicit techniques to appeal to the backgrounds and interests of the audience (8th).
1, 2, 4, 5, 6	**1.2.9**	Writes a complete piece that contains a clear introduction, reasonable body, and satisfying conclusion (6th & 7th). Develops a cohesive piece that contains an engaging introduction, a body that provides information, and a conclusions that reinforces the thesis statement and leaves the reader with a sense of completion (8th).
1, 2, 4, 5, 6	**1.2.14**	Practices/selects specialized vocabulary that is appropriate for expository writing and provides for ease of understanding.
1, 2, 4, 5, 6	**1.2.19**	Demonstrates/uses correct use of mechanics and simple punctuation.
1, 2, 4, 5, 6	**1.2.21**	Spells familiar and most unfamiliar words correctly and uses available resources (e.g. dictionary, spell check).
1, 2, 4, 5, 6	**1.3.10**	Writes with an awareness of purpose and audience (e.g. letters, simple reports, directions, graphics, brochures, electronic presentation, newsletters).
1, 2, 4, 5, 6	**1.3.13**	Selects words appropriate for the intended task/format (e.g. persuasive, if persuading; informational, if informing, etc.).
1, 2, 4, 5, 6	**1.3.14**	Writes compact sentences or phrases that make the point clear.
3, 4	**1.3.18**	Uses graphic devices that are supportive of the text (e.g. charts, graphs, illustrations).
5	**1.4.1**	Composes a thesis statement based upon an opinion or belief (6th & 7th). Asserts an arguable proposition or opinion (thesis statement) (8th).
5	**1.4.2**	Practices/uses (1) personal experience (2) observations (3) prior knowledge (4) research important for the reader to reach a conclusion and use an appropriate point of view for the piece (e.g. 1st person in editorial).
5	**1.4.3**	Develops details to expand the main topic and to support the writer's position.
5	**1.4.5**	Practices building a focused argument (6th) that utilizes logical thinking (7th) and appeals to reason, authority, and/or emotion (8th).
5	**1.4.12**	Uses language that is appropriate for persuasive writing and easy for the audience to understand.

Kansas Health Education Standards: Grades 5 – 8		
Lesson	**Standard**	**Descriptor**
4, 5, 6	**1.1**	Explain the relationship between positive health behaviors and wellness.
5, 6	**1.3**	Observe the influence of family, community, and peer on adolescent health decisions.

5	**1.4**	Describe ways to reduce risks related to adolescent growth and development.
4	**2.1**	Demonstrate the ability to locate health products, services and information, explore their validity, and compare their costs.
4	**2.3**	Describe situations requiring professional health services.
4, 5	**3.1**	Explain the importance of assuming responsibility for health behaviors.
4, 5, 6	**3.3**	Recognize risky and harmful health behaviors.
1, 4, 5	**4.3**	Analyze the influence of technology on health.
4	**4.4**	Analyze how information from peers influences health.
All lessons	**5.2**	Demonstrate communication skills to build and maintain a variety of healthy relationships.
5	**6.1**	Demonstrate the ability to apply a decision-making model to develop a plan of personal strengths, needs, and health risks.
4, 5	**7.2**	Share information and express opinions about current issues in health.
5, 6	**7.3**	Demonstrate the ability to work cooperatively with peers when advocating for healthy individuals, families, and schools.